



**Butterfly &  
Other  
Invertebrates Club INC.  
Newsletter**

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### OFFICE BEARERS 1997

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### AIMS OF ORGANISATION

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organise excursions around the theme of invertebrates e.g. butterflies, fireflies, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

### NEWSLETTER DEADLINES

If you want to submit an item for publication the following deadlines apply:

March issue - January 21<sup>st</sup>,

June issue - April 21<sup>st</sup>,

September issue - July 21<sup>st</sup>,

December issue - October 21<sup>st</sup>

### COMMITTEE MEETINGS

A quarterly meeting is now being scheduled in order to plan club activities and the newsletter. The next meeting is being held on Thursday May 7<sup>th</sup> 1998 at Rob MacSloy's place. Phone Rob for directions.



## EDITORIAL

Over the next three months our Club will be engaged in a wide variety of activities which we hope will be of interest to you and in which we hope you will participate. We will be conducting two Saturday afternoon excursions and one talk on Native Bees. If there are any activities you would like to see our club involved in please do not hesitate to contact a committee member as per the contact list.

We also hope to progress the Australian Fritillary conservation project. Currently we are in the early stages of writing a recovery plan. The Brisbane City Council has given us a small grant to help promote the project in the Brisbane area.

Once the Butterfly poster is produced we hope you will be interested in helping to advertise and promote it.

*Helen Schwencke*

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## PRESIDENT'S REPORT FOR 1997

*Presented to AGM 22<sup>nd</sup> January, 1998*

We are now three years old and have been incorporated for just over one year. The year has been a busy one for the club.

We have also had a diverse range of activities during our year. These have included light trapping near Sankey Scrub, a weekend field trip to Mike Groth's property at Crow's Nest and Jim Johnston's property at Ravensbourne nearby, an excursion to Richmond Birdwing sites around Beerwah including the properties of Arthur Powter and June Wimberley, a freshwater excursion to Stoney Creek in the Conondales, visits to the Helidon Hills near Gatton, to the Vickerman property in Belmont Hills and to Tingalpa Creek. Other activities have included presentations on Ants by Kris Plowman, attendance at the address to the Queensland Naturalists by Dr. Don Sands, and a joint meeting with the QNC and the Entomological Society, which was addressed by Prof Jeremy O'Neill of Laval University in Quebec who spoke on migrating insects, especially moths and butterflies.

Many thanks go to John Moss, Mike Groth, Jim and Bev Johnston, Arthur Powter, June Wimberley, Bob Miller, Rob MacSloy, John Marshall, the Queensland Naturalist Club and to the Entomological Society and to everyone else who helped make our program a success.

Throughout the year we have been holding quarterly planning meetings to conduct the business of the association and plan the program and newsletter. Through these planning meetings we have commenced working on the Australian Fritillary Project, whereby we called a meeting of people identified as having a strong interest in the conservation of this butterfly. Three of these meetings have been held with club members, members of other societies, and with CSIRO, DOE and local government officers. This project is proceeding.

Our second AGM was held on the 28<sup>th</sup> November 1996, at which time we also held a special meeting to incorporate our association. Incorporation proceeded with relatively few hitches.



Our club was also successful in receiving a grant from the Gaming Machine Community Benefit Fund for the production of the Swallowtail poster. This work is still in progress.

We have also applied for an environment grant from the Brisbane City Council for the Fritillary Project and are currently in negotiation with the BCC regarding a contract.

Daphne Bowden now has production of our Club's newsletter firmly in hand, seven issues having been produced to date. Thanks goes to Daphne for taking on this rather large task, and to Steve McGoldrick, Principal Manly West Primary School for his assistance. We continue to receive favourable comments about the quality, content and format of our newsletter. It has also been encouraging to see the growing number of contributors.

I'm optimistic that 1998 will be a great year for the club, especially once the poster has been produced. Last but not least, I'd like to thank Rob MacSloy, John Moss and Georgina John for the roles they've played as treasurer, vice-president and secretary, and to committee members, Kay McMahon, Terri Wolf and Daphne Bowden and to everyone who comes along to our meetings and activities. I have enjoyed your company and shared interest in invertebrates.

*Helen Schwencke  
President*

## EXCURSION REPORTS

### *Concluding Chris Plowman's talk on "Ants" delivered to Club members at the August 1997 meeting*

Ponerines have a sting, one petiole or segment at the waist. The sting contains a chemical mix which is quite painful and to which some people have an allergic response.

Nothomyrciinae which have a one segmented waist, a sting, have finely toothed elongate triangular mandible which when closed meet closely – this is considered to be the most primitive ant about and lives in Australia (does that tell us anything?)

Myrmeciinae Sting, two segments in the waist, mandibles elongate, with a series of teeth along the inner border and generally large – bull ants, jumper ants.



**Psuedomyrmecinae** Sting, two segments in waist, mandible shortened usually smaller species.

**Formicinae** Without sting, one segment on waist, apex of the gaster with a circlet of hairs offensive or defensive spray through circular opening.

**Dolichoderinae** Without sting and apex of gaster without a circlet of hairs, defensive fluids sprayed through an obscure slit.

My classification goes like this, these with stings and those which fart, of the stingers there are those with one segment and those with two, small ones with two, large ones with two. I have brought my file for identifying ants and you will see that there are a number of keys to the subfamilies.

But I have got diverted and have not told you why ants are considered so useful as evaluators of disturbed land.

As I said they are small and so are better able to reflect smaller scale differences in the landscape. For example, studies in what is now the Cooloola National Park have shown really high diversities of ant species, there are more than 300 species recorded. This in turn reflects the mosaic nature of that landscape, the sweep of dunes, the youngest near the sea the oldest on the Noosa Plain, the differences in the position of the water table and the variety of plants. These overlapping mosaics are quite small in area. It appears that they cannot sustain a diverse array of larger animals say vertebrate fauna yet can sustain a diverse array of invertebrates. As well ants operate through all levels of the landscape. They tend to build their nests in the soil, and in doing so are one of the agents impacting on the development of soil structure and fertility, nutrients are concentrated in their nests. Worker ants leave the nest and forage. Most ant larvae utilise animal matter while the adult workers, queens and males imbibe fluid sugary fluid honeydew, pollen and the like. As a consequence ants forage in the leaf litter, decaying wood, up trees and plants where they collect honey dew, or tend other animals like aphids and other Hemiptera. Ants protect these animals from predators, move them around and milk them. So ants are involved in the decomposer compartment, the vegetation and the soil, they are active throughout the various parts of the habitat. Studies have shown that as the complexity of the landscape increases the diversity of ants also increases. And here complexity means such things as layering of the vegetation, presence of logs and stones, heterogeneity in the surface of the plot such as drainage channels, dips, slopes, dams and the like.



So we can see a trend towards a greater diversity as the vegetation became more complex. The area had been planted with an array of plant species which occur in the local forest/woodland. Grass was planted to initially hold the soil, and then species of plants from ground cover to a number of canopy species were also planted. By year three there were places in the rehabilitation plot where the canopy was over three metres and closed with other less tall plants and ground cover plants. In these spots the grass had died out although it was still present in patches within the plot.

If the rehabilitation is following the sort of pattern seen in natural successions we would expect to see changes in the sorts of species present, the structure within the vegetation as well as changes in the structure of the soil and the cycling of nutrients. A more closed nutrient cycle would be expected through time. At some stage given the local climatic, geological etc conditions we would expect to have reached the most complex sort of habitat that could exist in the particular conditions. Throughout the succession as the conditions change so would the number and sorts of species and the final number of species may not be as diverse as it was at certain times in the succession.

Another good thing about ants is that for invertebrates ants are reasonably large, they can be fairly easily identified to genus, some are generalists, some are specialists and any measurement of their diversity is a reflection of all the rehabilitation rather than a portion only. This is why ants are considered to be such good indicators of the state of the system. The other group I work with are a primitive insect group called Collembola (springtails). Collembola are found in the decomposer compartment, the soil, and in the vegetation. However their taxonomy is poorly known, they are small, usually delicate and identification requires processing. Ants are easier.

I am also interested in the relationship of one life form to another. Ants are often associated with plants. They visit what are called extra floral nectaries on plants and protect these plants from being eaten by other animals. Some plants have even grown in certain ways so that ants will move in. There are trees in Africa for instance which have hollow thorns in which ants live and in South America several plant genera produce bladder-like swellings on the petiole or the base of leaves in which ants live. Some plants in tropical America and Africa actually produce corpuscles embedded in the petiole which are rich in protein and oil, easily detached and are carried away by ants. The plants appear to be feeding the ants. The ant plants actually grow so that there are preformed cavities inside and ants are able to colonise these. Plants also appear to develop the extrafloral nectaries to encourage the presence of ants.



There has been lots of discussion re why we see Australia with lots of acacia but no thorns.

Ants also are known to propagate fungi. The most famous is the ant of the genus *Attini* which lives in the Americas. This ant tends fungi gardens and eats fungi. Many species of this genera gather fresh leaves and flowers on which to grow the fungi. Wood corpses of other arthropods, insect faeces, fruit are also used by some species. The queen carries a bit of fungus with her when she goes off on the nuptial flight. Many ants collect seeds and take off the elaisomes (which are rich in proteins and oils) and then take the seed back out of the nest.

Ants and other animals: ants and aphids, butterfly larvae, inquilines etc. Ants actually maintain a number of Hemiperans such as aphids and coccids. Ants milk these animals and move them about. The aphids and coccids change their behaviour in the presence of ants. Ants protect the aphids and occids from the elements and from predators. I have also mentioned how ants attend butterflies and probably collect fluids from the larvae. A host of animals are associated with ants, these are called inquilines. These animals live in or close to ant nests. Some hunt ants, other scavenge and a further set just seem to hang about. Wilson lists members of the following major taxa spiders, mites, millipedes, collembola, thuysanura, orthoptera, cockroach, homoptera, booklice, neuroptera beetles, butterflies and flies.

Ants and humans are also involved in relationships e.g. the use by aborigines of ant products, the petroleum fractions in the ant runways in central Australia. Also in central Australia aborigines at least in the past, took advantage of ants habit of collecting seeds, removing the elaisome and returning the seed to the surface. Early European travellers in the centre reported that aborigines collected up grass seed outside ant nests and ground them into a flour. Apparently there were large amounts of seed beside nests. Aboriginal people also dig up the replete that the enlarged ants filled with honey which are down in the nests. It goes something like this – the workers go out and collect sugary fluid and return to the nest, where they regurgitate it and it is taken up by a replete which acts as a storage tank for the colony. These are a tasty morsel.

We also use ants as well as other animals to act as metaphors for us all. One such metaphor is that ants are industrious and sometimes ant social organisation is used as a model for human organisation (sometimes for and against). The ant model of industriousness goes back in Europe at least to the Bible Proverbs (advice by old fellow to young fellow) tells us to look to the ant thou sluggard. Wilson says that man's most cherished notion about social insects like the ants is that the workers are highly



virtuous, industrious and efficient. Now let me quote Wilson "entomologists have begun to suspect that contrary to the folk lore, the members of insect societies do not labour as hard or as efficiently as they might in the interests of colony growth". It has been found in some species that workers are idle approximately half the time. Wilson studied a harvester ant species where the workers were unoccupied most of the time even during the hours which were the peak of the foraging time. Another study found that as the number of workers increases for excavating sands both the proportion of elite hardworking individuals and the average amount of work per individual decreased. One study in bees makes this really interesting point about 'loafers' in a honeybee colony by saying, and I quote, these are "the reserve troops, employed at critical points in the labour market as necessity arises". This is most interesting as re the problem of looking at animal behaviour in a truly objective way.

*Chris Plowman*

### **Report on Australia Day Weekend, 1998 – Beerwah Field Study Centre**

*This is an extract from an article prepared for the QNC Club by John Moss*

Under the leadership of Bob Miller, local club member, Saturday morning was spent visiting sites along the Stanley River, off the Peachester road, the main objective to find and observe Richmond Birdwing butterflies, their larvae and pupae.

We were not to be disappointed, for at the very first site, a road reserve near the first bridge across the river, were masses of *Pararistolochia praevenosa* vines scrambling and climbing among the riparian rainforest remnant – this, the hostplant of the Birdwing, rewarded us with sightings of larvae of several instars among its foliage. Soon after, firstly females, then the spectacular male adults were noticed in flight, along with several other butterfly species including the Australian Leafwing (*Doleschallia bisaltide*).

It wasn't long before we also discovered



Australian Leafwing (*Doleschallia bisaltide*)



larvae and pupae of the Leafwing. The larvae are most spectacular with bright red and metallic blue markings on a black background. Their hostplant, the small herbaceous plant *Pseuderanthemum variabile*, was quite common. It is also a hostplant for the Common Eggfly butterfly (*Hypolimnas bolina*) which was also seen at this site.

The second site, Commissioner's Flat, also on the Stanley River, is a declared Richmond Birdwing Butterfly Sanctuary, and also had masses of *Pararistolochia* with Birdwing larvae again present in good numbers. Here we found a lovely shaded sandy bank on the river where we had lunch (and a few of us a sleep!). This site was also noteworthy for the number of specimens of the plant *Wilkea macrophylla*, a known hostplant of the Regent Skipper butterfly (*Euschemon rafflesia*). Although the butterfly itself was not seen here, one of its moth mimics was noted but evaded capture. This mimicry situation was first noted by the author at Bellthorpe State Forest on our last QNC camp there – it is a new finding, two moth species appear to be involved, and it is not known at this time which of the three species are the models or the mimics!

One insect that was captured was a black specimen of the cicada *Psaltoda plaga*. This was noteworthy because previously it was thought that the Sunshine Coast hinterland population of this species were green like their siblings along the coast proper. Specimens captured on the Mooloolah River appear to be green. More work needs to be done to elucidate this situation more clearly. A related, but as yet undescribed species of *Psaltoda*, was also heard at these sites.

Among other cicadas heard and seen were large numbers of the noisy "Razor Grinder" (*Henicopsaltria eydouxi*) and the prettily marked "Red Treeticker" (*Birrima castanea*) a female of which was secured. Razor Grinders have been shown to emit sound pulses measurable at 120 decibels at 1 metre distance – this equating to the pain threshold of the human (and perhaps avian) ear! Red Treetickers tend to occur more at altitude in Queensland (and often down to sea level in NSW) and are commonly associated with Sydney Blue Gums (*Eucalyptus salignus*) and Flooded or Rose Gums (*E. grandis*).

After leaving the Stanley River we retraced our path back to Beerwah, where we visited June Wimberley's lovely butterfly garden. She has planted up about 40 species of butterfly hostplant (many of which are large trees) and consequently has the ongoing pleasure of seeing many of her local species flying and breeding in her own garden. As if that was not enough, June showed off her photographic prowess and produced three collages of butterfly life histories (including Leafwing, Common Crow (*Euploea core*) and a Blue Triangle (*Graphium sarpedon*), which she had obtained from careful and



patient surveillance and observation - the resultant full colour photographs absolutely clear and lifelike.

We all appreciated June's wonderful generosity when on our arrival she produced a platter of fruit (including a most delicious watermelon) and gallons of cold water, most welcome on this very warm summer day.

Our second last stop for the day was at Bob Miller's house at Landsborough, where we were shown his various species of *Pararistolochia* vines, one of which supported populations of Big Greasy (*Cressida cressida*) butterflies, a relative of the Birdwing.

Bob then led us to our final stop for the day a forestry reserve on the Mooloolah River, near the Rustic or Log Cabin at the Caloundra turnoff. We had seen Common Aeroplanes (*Phaedyma sherperi*) and Regent Skippers on a previous trip there with the Butterfly Club (in February the year before), and Tony Ewart thought he had heard there, earlier in the season, a restricted cicada *Psaltoda adonis*.

Possibly because of the loud shrilling of the Razor Grinders we did not hear *adonis* but we did sight at least one Regent Skipper (however briefly) and saw many Regent Skipper larva and a few pupae encased between the sewn leaves of their favoured hostplant *Wilkea huegeliiana*.

On day two we proceeded to Mary Cairncross Park which is a remnant of an unusual complex notophyll vine forest (type of montane subtropical rainforest). Butterflies included more Birdwings, one Regent Skipper and several White Nymphs (*Mynes geoffroyi*), which at first sighting resemble a Common Jezabel (*Delias nigrina*), and whose larvae feed on the leaves of the various stinging trees.

At one part a large branch was observed to have fallen across the track – this was identified as the “White Euodia” (*Euodia* – now *Melicope micrococca*) and was covered in masses of white sweetly scented flowers. It had brought down a smaller branch of another Rutacid – “Hairy Acronychia” (*Acronychia pubescens*). On the underside of a leaflet was a large round moth or butterfly egg. We could only speculate that it may have been egg of the Orchard Swallowtail (*Papilio aegeus*) butterfly – unfortunately it had to be left where it was, tragically doomed as the branchlet would wither and die.

After leaving the Maleny area we proceeded to Arthur and Narelle Powter's property midway between Beerwah and Mt. Melleini. The Powters are actively involved in the CSIRO Double Helix Richmond Birdwing Butterfly Recovery Project and have a



rainforest gully with many vines and eggs, larvae, pupae and adults of the butterfly. As well several other butterfly species are present from time to time one of these, the Purple Crow (*Euploea tulliolus*) was seen in February 1997 when the Butterfly Club visited but unfortunately was not apparent on this occasion.

We were shown small red mites that are parasites and possible predators of butterfly eggs. The Powter's are collecting this material for Dr Don Sands (CSIRO) to do research on.

Later on in the evening several of us returned and ran two light traps to collect as many cicada species as possible. The main object was to attempt to capture the new *Psaltoda* species heard earlier in the day and also the February previously. Needless to say the *Psaltoda*'s were very shy on the night, but several raucous Razor Grinders came instead!

The following morning, day three, the remaining members walked off into the surrounding wallum to observe plants, insects, birds etc. One of the sedges, *Gahnia sieberiana* was very common and it was thought that we may possibly see the northern subspecies of the "Swordgrass Brown" butterfly (*Tisiphone abeona rawnsleyi*). Unfortunately it was not seen, perhaps this warmer weather was not conducive for its flight period. However Tony Ewart, Lyndsey Poppel and Ronald Moss spent a considerable time in the sweltering conditions tracking down the pretty wallum cicada (*Cicadetta stradbrokeensis*) which has a most complex and interesting (partly ventrioquial) song.

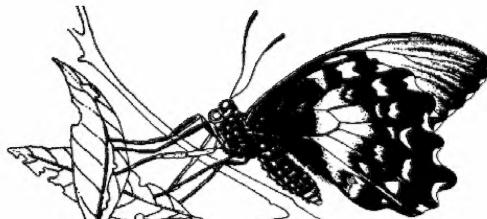
*John Moss*

***Report on Excursion to Mt Glorious Biological Centre on Saturday 14<sup>th</sup> February 1998 compiled by Rob McSloy and John Moss***

Valentine's Day found nearly 20 Club members sampling the delights of Mt. Glorious with a visit to Katie and Tony Hiller's Mt. Glorious Biological Centre.

Taking time out from their busy schedule (they supply around 200 butterflies a week to the Butterfly House at Southbank!!!) Katie and Tony showed us around their flight cages where they keep their breeding stock. Familiar species such as Orchard Swallowtail (*Papilio aegeus*) were on the wing with such tropical species as Cruiser (*Vindula arsinde*) Orange Lacewing (*Cethosia penthesilea*) and Blue-banded Eggfly (*Hypolimnas alimena*).





Orchard Butterfly (*Papilio Aegeus*)

Larva and pupa of the Cairns Birdwing (*Ornithoptera priamus*) were also seen and we were also treated to tantalising views of some of Tony's extensive Australian and overseas collection.

The day was humid and showery with many leeches attempting to set up their own "Valentine's Day Massacre".

*Rob MacSloy*

*John takes over from here –*

After our visit to the Hillers we proceeded to the adjacent Miala National Park picnic area for an evening B.B.Q. As dusk approached we could hear the various crickets, katydids and cicadas commence their songs. Knowing that there are two undescribed species of "Bladder/Bottle" cicadas in this area, we were keen to find the "originators" of some of the songs. One in particular, was a haunting sound that we were unfamiliar with and was coming from the rainforest proper and which had Rob and Lindsay quite intrigued.

One species we did find was the "Small Bottle Cicada" *Chlorocysta vitripennis*, but the elusive sound we eventually traced to a type of subterranean cricket – probably one of the *Gryllotalpa* species of the "Mole Crickets".

We retraced our steps back to the Hillers as Tony and Kate had invited us back to do our light-trapping at their place, to save us having to look for a suitable site outside the National Park boundaries. As it turned out, light-trapping couldn't have been easier! The Hillers have a fixed weather-proof Mercury Vapour lamp on their back porch!

Although no cicadas came to the light, the array of moths and beetles was considerable and included such moths as:-

the "Yellow Emperor Moth" – *Opodiphthera janetta*, one of the Saturnids;

the "Spotted Carpet Moth" – *Tigridoptera matutinata*, a Geometrid or "Looper"

the "Emerald Moth" – *Agathia prasinaspis*, another Geometrid;

a giant Hawk Moth – *Metamimas australasiae*, whose larvae feed on Eucalypts and are without the familiar dorsal horn of other Hawk Moth larvae;

a reddish-brown Authelid – *Anthela nicothoe*, whose larvae feed on acacia;

and two brightly-coloured fruit piercing moths viz: *Othreis materna* and *Eudocima salaminia*, both in the Noctuidae. These last two are of commercial importance to orchardists because of the damage to fruit.



Frank pointed out a tiny irregular shaped "blob" which turned out to be a moth attached head down at 90deg. to the vertical surface! Another tiny one held its wings above its "back" butterfly-like. Another had pale-blue, translucent hindwings, resembling a pane of a stained-glass widow. One intriguing insect was the "Rove" or "Bunjing" Beetle which had half length elytra (wing covers). Tony warned us about touching this, as we may have received a present of part of its undigested recent meal of carrion!

Although we departed late, it was agreed that the light trapping was probably the most successful to date.

We are grateful to our hosts and fellow club members, Kate and Tony, for giving up their afternoon and evening to ensure that this excursion was successful.

John Moss

### CREATURE NOTES

#### Creature Note #7

#### Good News on Ants

A couple of years ago a very strange thing happened in our bathroom. Worker ants of the African big-headed (*Pheidole megacephala*) herded their queen ants into the house and abandoned them under a moist washer in a corner on top of the bath. Being very curious about this behaviour we left the washer mostly undisturbed to see what would happen next.

Every now and again one of the queens would make a run for it only to be herded back to the washer. After a few weeks we grew tired of the inconvenience and deposited the ants back downstairs. Some had died and the rest did not seem very healthy.

The African big-headed ant was a very successful coloniser of suburban backyards and it would exclude most other ants. It especially liked to nest in pot plants and was easily inadvertently transported to new sites in this way. But now they were becoming harder to find. Eventually there was only one small nest left and now, several years later, I can no longer find any in the yard. It was like waking up one day to find that all the cane toads had disappeared.

I thought that perhaps it was only happening in my backyard. However, a friend who lives many suburbs away mentioned that he noticed that the African big-headed ant had also disappeared in his area and that the native ants were returning.



This is good news not only for ant enthusiasts but also for butterfly enthusiasts. Many pretty butterflies live in association with ants and will not breed unless these ants are present. It may now be possible for some of these ants to establish themselves in backyards without being exterminated by the African big-headed ant.

I don't know what caused those worker ants to commit regicide several years ago. Were they trying to protect their precious queens from a bacterial infection in their nest below? Had a new ant moved in?

All I know is that now the native ants are moving back in – gold ones, green ones, black ones, brown ones, dark purple ones.

*Frank Jordan*

LETTERS

*The following letter was received from Janet White.*

Giant Wood Moths (*Endoxyla cinerea*) enlivened one of our Christmas shopping trips! On our way to the shops we passed through Teralba Park and I noticed the discarded pupal cases and the thumb-sized holes in the eucalyptus trees. On our return we looked more closely – we could hardly contain our excitement when we found two recently emerged moths and one emerging pupa! The newly emerged moths varied slightly in size, with the largest being about 12-13 cm from head to wing tip. The body was mouse-sized and mouse-like in its furriness!

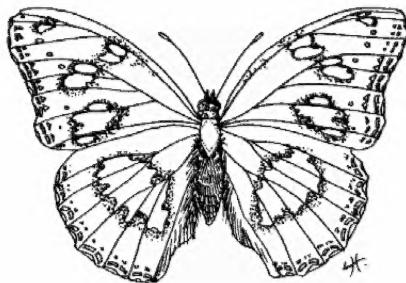
The shopping was dumped, I scampered off to grab the camera and tripod, and phone Helen Schwencke – we were so thrilled, we wanted to share the moment with some like-minded people!



*Teralba Park is a 50-acre park bordering Kedron Brook in the suburb of Everton Park. The Teralba Park Greening Group holds plantings on the 4<sup>th</sup> Sunday of each month. We will be having a butterfly planting on April 26<sup>th</sup> from 2-4 pm, when we will infill our existing plantings with butterfly host plants. Please come along! For more details phone Janet White on 3354 1089.*

*Thank you Janet for sharing this with us. Ed.*

Darryl Kemp has written to John Moss on behalf of the Butterfly Club and mentioned his research project on the Common Eggfly (*Hypolimnas bolina*) which he is doing for a PhD at James Cook University, Townsville.



Common Eggfly (*Hypolimnas bolina*)

He writes " I am always most interested in hearing news about this butterfly from down your way – i.e. casual observations on when butterflies are on the wing, whether they overwinter and what foodplants they are using, etc. If you know of people that are in the field a lot I would certainly be interested in hearing any observations they may make. I

can be reached at 133 Loridan Drive, Brinsmead Qld. 4870."

The following outline of his research project is a condensation of a 10 page proposal that he had to submit.



## **Alternative male mating tactics in the tropical Nymphalid butterfly *Hypolimnas bolina***

### **Summary**

A general characteristic of polygynous butterfly mating systems is that males are primarily concerned with actively locating receptive females. In these systems, intrasexual selection has led to the evolution, by males, of the most efficient tactics for locating as many receptive females as possible. Whilst traditionally researchers believed that males of each species exhibit a single, optimum tactic, recently it has become apparent that males may show significant inter-population variability in their mate location tactics. These animals provide a challenge for evolutionary biologists to explain the reasons underlying such variability.

*Hypolimnas bolina* is a species which exhibits alternate mate location behaviour. The primary tactic of males is to defend an encounter site which presumably allows them exclusive access to receptive females. Males in this situation are highly aggressive and tenacious to their sites, with some retaining residency for up to several months. The alternative tactic, observed at several oviposition sites in North Queensland, consists of non-aggressive patrolling behaviour, whereby males sweep large areas and investigate any moving object. This tactic is exhibited by males under high local densities, and appears to correspond to the cessation of reproductive dormancy in this species.

The incidence of reproductive dormancy in *H. bolina* may provide a level of ecological variability that requires alternate male mating tactics. Because females enter dormancy before mating, the potential exists after the cessation of dormancy for females to 'flood onto the mating market' in large numbers. This situation would contrast markedly with the more orderly stream of females expected during the more continued breeding season, and may require a different approach to mate location by males.

The aim of this project is to investigate why male *H. bolina* exhibit alternative tactics for location receptive females, and test the hypothesis that the alternative male mating tactics have evolved due to the incidence of adult reproductive dormancy. I will attempt to achieve this aim by studying (a) each male tactic in detail, (b) the patterns of use of tactics by individual males, and (c) the sources and behaviour of receptive females, including a detailed examination of reproductive dormancy in this species.

### **TEACHING TIPS**

#### **Lures and Traps for Teaching Kids about Insects by Mike Groth**



Kids love collecting and looking at live, creepy crawlly things and here are some simple tips for getting a closer look at them by attracting with baits and trapping without harm.

One of my favourite lures which I have found good for attracting certain kinds of moths, butterflies, flies, beetles, ants, wasps, bees and cockroaches is the fermenting fruit bait. To hold the bait I use the leg of an old stocking. Alternatively, a cheesecloth or mosquito netting bag could be sewn up measuring about 300 mm long by 100 mm wide open on one of the narrow ends. The bait consists of some sort of well overripe fruit – I recommend banana (one that has been forgotten in a lunch box, gone black and very squishy is ideal and usually easy to get), apricot (3 or 4), grapes (bunch) or a mango. Simply place the fruit into the bottom of the bag and hang on a low tree branch or other support outside so that visiting insects can be viewed easily. Insects will be attracted to feed at the sweet juices which ooze from the decaying fruit and are often so absorbed in the task that one can watch their feeding habits very closely. The bait attracts insects both day and night so kids can make one at home and watch what comes to it at night too. Another interesting activity is to make up several baits using different fruit (other baits such as decaying vegetable scraps, cloth soaked in sugar water or your own concoction can be tried) and see which one attracts the most or which insects come to each type of bait. Also, insects visiting the bait can be collected, observed in the classroom and then released.

A method for getting a closer look at ground dwelling insects as well as spiders, scorpions and the like is the pitfall trap. A pitfall trap is simply a container buried in the ground so that it's top is flush with ground level. The container could be a tin can, ice cream container, bucket or a 20 litre pail or drum with the top cut out. Fast food shops throw out heaps of metal drums with lids. Ice cream parlours are also a good source of containers for pitfalls. The bigger the mouth of the container the more likely wandering invertebrates will encounter it. The pitfall can be made more effective in two ways:

- (1) Baiting – hang a little bag over the middle of the pitfall, suspended about level with the ground from a stick, and place some bait in the bag. Piece of raw meat attracts carrion beetles, fresh dog dung attracts native dung beetles, fresh cow manure will attract the introduced dung beetles, fruit attracts beetles and bugs. Again, it is worthwhile trying your own ideas for baits.
- (2) Fencing – a barrier or fence such as a plank of wood 2 to 4 metres long, or a strip of shade cloth or gauze about 100 mm wide supported by pegs every 600 mm and its bottom edge buried in the ground will guide insects, spiders and the like to the trap. Occasionally small snakes, lizards and small mammals and frogs will be caught especially if large (20 litres plus) containers are used.



Note: When using traps deeper than 200 mm – most mammals and frogs which fall into a pitfall will die if left in there during the heat of the day so it is important to check the trap during the morning and observe, collect or release the catch. If the trap cannot be attended to in this manner then it is best to cover the trap with a lid so no animals will be trapped and die.

These activities are simple and effective for getting kids interested because they get to make the item and then also get to observe the results from the trap or lure which they have made. It also makes use of those old squishy bananas hiding in lunch boxes!00.

With this year's Year 2 Diagnostic including a book on insects don't forget my program and display "Amazing Insects Alive" is available to schools in South East Queensland. If you would like a brochure or more details or you know of a school who might like me to visit, give me a call on (07) 4698 1949 or write to me at 3 Pinnell Road, Crow's Nest, Qld. 4355

### WORLD WIDE WEB SITES TO WATCH

The site recommended for a visit this time is one composed by Bob Moffatt entitled Gardening with Butterflies in Mind.

<http://nornet.nor.com.au/environment/species/birdwing/gardening.html>

Also a site which appears to contain the plants mentioned at the previous one

<http://nornet.nor.com.au/environment/species/birdwing/plants.html>

### AUSTRALIAN FRITILLARY - ISSUES PAPER

*Concluding this article begun in the December '97 Newsletter*

#### Strategies for conservation

In "Threatened Species : Guide for Action : A guide to conserving threatened species and their habitats (VanderGragt, 1996) the following conservation planning strategies are outlined:

- Action Plans include a short summary of the species in question and the steps needed for its recovery. These plans also suggest that the species needs to be discussed if the species is not listed in the Commonwealth schedules. Species with Commonwealth 'endangered' status under the Action Plans may have a recovery plan written for them.



- A recovery plan may be prepared after a species or community is nominated and added to the schedules of the Commonwealth Endangered Species Protection Act as well as for species covered in an Action Plan, even though they are not listed in the ESP Act Schedules.
- A recovery plan is a detailed plan outlining the research and management needed to ensure the long term survival of a species or ecological community in the wild. The plan aims to re-establish viable populations and usually includes removal of threats such as clearing of critical habitat.
- To be accepted under the Commonwealth Endangered Species Protection Act each recovery plan must:
  - have a clear objective (for example, eventual de-listing or indefinite protection)
  - state the criteria by which to measure success (for example, a specific increase in population numbers or distribution, or the threat removed)
  - detail the management and research actions needed to achieve recovery
  - include the timing and cost of recovery actions
  - state benefits to other species or ecological communities
  - identify and include everyone who may have an interest in the species or ecological community
- Community involvement in developing and implementing recovery plans is an essential part of species recovery.
- Key steps in developing a recovery plan should include:
  - public consultation
  - a public workshop for information gathering, generating ideas, and identifying the range of interested people (including those who may be able to contribute to the recovery team)
  - public involvement at all relevant stages of developing and implementing the recovery plan

A recovery team should reflect the range of community interests. It should consist of people with relevant expertise and include a balance of social/cultural, scientific, political and economic interests.

As part of the recovery process threatened species, ecological communities and threatening processes can be nominated for listing in the schedules to the Commonwealth Endangered Species Protection Act. Guidelines for nominating these are available through the Threatened Species Network.



In order to register a national recovery plan for a species it must be listed under Schedule 1 of the Endangered Species Protection Act 1992. There are processes in place whereby the community can nominate a native species for listing.

### **Some Elements of a Recovery Plan**

- Determining who can help with this conservation project
- Reintroducing violet into past known habitats?
- Establishing a seed producing farm – What implications would this have for the various genotypes of the violet?
- Establishing a captive breeding program
- Setting aside reserves in known habitat types
- Establishing what State/Local Govt. controlled lands or reserves contain known or potential habitat
- If the Australian Fritillary is no longer to be found in Queensland, reintroducing larva from NSW?
- Determining what contribution volunteers can make
  - in their own backyard
  - in local parks
  - in bushland regeneration projects
- Determining where conflicts of interest may arise  
eg. Extensions to the runway at Maroochy airport eliminated a population of violets clearing of Melaleucas at Mudjmimba for a housing estate eliminated another. The planned logging of a pine plantation may eliminate another
- Cryogenic freezing of appropriate lifecycle stage?

### **Resourcing a conservation strategy**

- What possible government resources are available to support this project?
  - The Qld Dept of Environment currently has no discretionary funds. It can play a support role, and can put up a project for approval, should it be determined that the butterfly is actually endangered, ie. that its current apparent decline is more than a normal cyclical phenomenon
  - The dept of Environment needs to determine whether the apparent disappearance of this species from its former range is a legitimate cause for concern
  - Should this butterfly actually need assistance, eg. via a recovery plan, the Department has access to Commonwealth funds, eg. the Heritage Trust and the National Vegetation Initiative
  - Some local councils have bushland conservation initiatives for which a Fritillary conservation project might be suitable
  - The role of the NSW government still needs to be determined.



### **Research and documentation needed**

Some of the research and documentation needed has already been identified in the sections above. Other requirements are as follows:

- Description of the plant communities in which the violet occurs
- Dispersal of the adult stages. Does the butterfly have a mountain/lowlands dispersal cycle?
- Is the prevalence of this species cyclical, and if so, what determines its cyclical nature?
- Documenting competitors on food sources
- Predators and parasites of Fritillaries and their competitors, eg. one Violet site examined had 3 different moth caterpillars living on the violets, those collected to record lifecycles were all parasitised
- Identifying any exotic violets and other plants that may be used as substitute hosts
- Determining the effect of different herbicides on violets and their seeds when weeds are removed, eg around drainage canals near sugar cane fields. (Reported at Condong in northern NSW and along Petrie-Dayboro road where grasses and weeds were sprayed, the violets regenerated quickly thereafter)
- Determining the effect of burning regimes on violet regeneration
- Determining how weed invasions affects the viability of violet populations

### **LIBRARY BOOKS FOR LOAN**

The following books are currently available for loan at meetings:-

*Australia's Butterflies*, by Peter Wilson

*Butterfly Magic*, by Helen Schwencke and Frank Jordan

*Australian Cicadas*, by Max Moulds

*Butterflies of Australia*, by Common and Waterhouse, 1981

*Butterfly Watching*, by Paul Whalley

### **ADS AND EXCHANGES**

Sometimes you may have an oversupply of legally obtained caterpillars of non restricted species and your food supply will not hold out. If this happens, contact Rob MacSloy - 07 3824 4348 - who operates the Register of Host Plants. He can put you in touch with prospective "foster parents". Have **YOU** advised Rob of the host plants you have available?



## BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

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When: Saturday, 21<sup>st</sup> March, 1998, 1pm-5pm  
What: Excursion to Nudgee Beach Reserve and Boondall Wetlands. We will be looking for potential Australian Fritillary Habitat and for Illidge's ant blue  
Meet: Nudgee Beach Environmental Education Centre, at Nudgee Reserve. You will find this at the end of Nudgee Road then turn into O'Quinn Street  
Bring: Your own afternoon tea and drinks  
R.S.V.P.: Helen Schwencke, ph. 3844 6677

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When: Thursday, 23<sup>rd</sup> April, 7.30pm for information exchange  
What: A talk on Native Bees by Tim Heard commencing at 8pm  
Where: Runcorn State School Staff Room, cnr Beenleigh Road and Mains Road, Runcorn  
Contact: Helen on 3844 6677

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When: Saturday 16<sup>th</sup> May, 1998, 1.00 pm  
What: Excursion to Toohey Forest to look at Common Crow Over-wintering sites  
Meet: Entrance to Toohey Forest at Isabella St. Tarragindi  
Bring: Refreshments, insect repellant  
Contact: Helen on 3844 6677. Since this excursion is dependent on there being some Common Crows to look at, it is important to RSVP, so we can let you know about changes in plans.

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*If there is a particular speaker you wish to hear or a particular event you wish to attend, it would be wise to phone the contact for that event in case, for some unforeseen circumstance, the event has had to be postponed or cancelled.*



## MEMBERSHIP FORM

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Suburb/ Town \_\_\_\_\_ State: \_\_\_\_\_ Postcode: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

If you are employed in a relevant occupation, or have a specific area of expertise,  
please specify the occupation and organisation: \_\_\_\_\_  
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If you have are subscribing on behalf of a School, please specify which School:  
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I have enclosed a cheque / money order for -- please specify which membership /  
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\$10.00 Individual / School                     \$15 Family  
made payable to **Butterfly and Other Invertebrates Club Inc.**



## ACKNOWLEDGMENTS

Producing this newsletter is done due to the efforts of:

- Those who sent in letters and articles
- Lois Hughes who provided illustrations
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- Lois Hughes who developed the cover design
- Frank Jordan for inspiration

We would like to thank all these people for their contribution

## ARE YOU A MEMBER

*Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible.*

### **Butterfly and Other Invertebrates Club Inc.**

c/- PO Box 2041  
Runcorn Q 4113

**NEXT MEETING: Saturday, 21<sup>st</sup> March – Excursion to Nudgee Beach Reserve  
and Boondall Wetlands**

